

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: The results of the RB-TnSeq analysis and the transcriptomics discussed in this study. For each gene that is not essential for the survival of *S. elongatus* under laboratory conditions, this table provides: locus tag, genomic location, gene/locus name, gene description, the results of the RB-TnSeq analysis including fitness estimate and associated statistics under selective vs control conditions (Fitness, Std error, T value, P value, P value model, P Holm model, P fdr model, High confidence), and published transcriptomics data of *S. elongatus* during a circadian time course and upon shading.

File Name: Supplementary Data 2

Description: The raw data (read counts for each barcode or mutant strain, "all.poolcount.txt"), the R scripts ("Transformation_Screen_AT051018.Rmd" and Transformation_Screen_AT051018.nb.html) to analyze these data, the annotation of each locus in the *S. elongatus* genome (locus tag, gene name, gene location, and gene description, "genes.tab"), and the result of the analysis (Fitness, Std error, T value, P value, P value model, P Holm model, P fdr model, "Transformation_Screen_Estimates_AT051018.csv"). In addition, this archive also includes a description of the samples ("Transformation_screen_AT051018.csv") as required by the R-scripts and a document ("READ_ME.txt") that lists and describes each file within the archive.